

From: Lancaster, Thomas
Sent: Friday, October 05, 2012 3:25 PM
To: josh_leftwich@cameco.com
Cc: john_schmuck@cameco.com; Persinko, Andrew; VonTill, Bill; Simon, Marcia; Hsueh, Kevin; Trefethen, Jean; Goodman, Nathan; Burrows, Ronald
Subject: ACCEPTANCE REVIEW, MARSLAND EXPANSION AREA LICENSE AMENDMENT APPLICATION

Mr. Josh Leftwich
Director of Safety, Health,
Environment and Quality
Cameco Resources
2020 Carey Avenue
Suite 600
Cheyenne, WY 82001

SUBJECT: ACCEPTANCE REVIEW, MARSLAND EXPANSION AREA LICENSE AMENDMENT APPLICATION,
CROW BUTTE RESOURCES, INC., CRAWFORD, NEBRASKA, LICENSE SUA-1534 (TAC J00674).

Dear Mr. Leftwich:

By letter dated May 16, 2012, Cameco Resources (Cameco) submitted to U.S. Nuclear Regulatory Commission (NRC) staff a request to amend the Crow Butte Resources, Inc. license SUA-1534 to develop uranium resources at the Marsland Expansion Area (MEA) in Marsland, Nebraska. Cameco intends to develop the MEA resources using *in situ* recovery techniques, and transporting loaded ion exchange resins from the ISL process to the central processing plant at the main Crow Butte facility in Crawford, Nebraska. NRC staff has performed its acceptance review of the technical and environmental reports included in the application. Based on our review, this application has been formally accepted for detailed technical and environmental review. The staff will initiate its technical review of the technical and environmental reports.

In an effort to make the process more efficient, NRC staff is providing some preliminary observations of the MEA application prior to the formal issuance of requests for additional information. To make the application clearer, Cameco should provide clarification for NRC staff's observations listed below within 60 days of the receipt of this letter.

Application Chapter 2

1. On page 2-91 of the Technical Report (TR), the applicant states that the MILDOS default mixing height is 100 m. NUREG/CR-2011 states that the default mixing height is 1000m. Please address the following: a) correct the statement in the TR or provide the reference for 100 m default mixing height, b) revise MILDOS calculations if the default value is different than what was originally used.
2. Please provide a description of the meteorological station location (topography, obstructions, or lack thereof, etc.) for staff to evaluate Regulatory Guide 3.63, Regulatory Position 2, or indicate where this can be found in the TR.
3. Consistent with NUREG-1569, Acceptance Criterion 2.5.3(2), please provide a discussion of severe weather and its impact, or indicate where this can be found in the TR.
4. Consistent with NUREG-1569, Acceptance Criterion 2.5.3(3), please provide the following: a) p-values for all linear regression analyses, b) The Scottsbluff station has only 15 years of data. This is not consistent with the Regulatory Guide 3.63 recommendation for long-term analysis (e.g., 30 years). Please provide justification for using only 15 years of data or provide corroborating data from other representative stations.
5. Table 2.5-7, Marsland Expansion Area Meteorological Station, appears to be a tabulation of site-specific meteorological data (wind) from August 2010 to August 2011. However, the reference at the bottom of the table credits the National Climatic Data Center (1996 through 2011) as the source of the information.

Please clarify the source and timeframe of the meteorological data in Table 2.5-7.

6. For Table 2.5-8, Marsland Expansion Area Wind Summary, please provide units for the columns "Average" and "Maximum" under the wind direction portion of the table.
7. Section 2.5.1 of the TR indicates that the site-specific meteorological station coordinates and period of operation can be found in Table 2.5-1. NRC staff can't locate this information in Table 2.5-1. Please confirm that this information is tabulated in Table 2.5-1.
8. Please provide criteria consistent with RG 4.14 used for determining air monitoring locations or indicate where this information can be found in the application.
9. Surface water and sediment sampling point N-2 does not appear to be consistent with RG 4.14 (i.e., not immediately downstream of the area of influence). Please provide justification for this sampling location.
10. NUREG-1569, Acceptance Criterion 2.9.3(2) specifies that soil sampling at both 5-cm and 15-cm depths be completed. NRC staff has found no 15-cm soil samples proposed in the TR. Please provide justification for not performing soil samples at 15-cm depths, or indicate where this can be found in the TR.
11. In TR Section 2.9.2.1, the applicant states that the local wind direction is predominantly from south-southwest direction approximately 45 percent of the time. This statement appears inconsistent with the previous statement regarding the north-northwesterly and northwesterly winds and Figure 2.5-20 and Table 2.5-7 that indicates the south-southwest winds occur with a relative frequency of 5.3 percent of the time. Please provide clarification on the predominant wind direction.

Application Chapter 4

1. Consistent with NUREG-1569, Acceptance Criterion 4.1.3 (4), please address elevated radon progeny levels experienced at the main facility (See 2011 inspection report ML102510131) and address how the Marsland facility will compensate for this scenario.
2. Section 4.1.2 of the TR indicates that exhaust fans will be used to ventilate the wellhouses. Please describe any routine maintenance checks to ensure the operability of these exhaust fans.
3. Consistent with NUREG-1569, Acceptance Criterion 4.1.3 (5), please provide details on your ALARA program including specific goals and how airborne effluent releases are determined to be ALARA.
4. During the acceptance review, staff observed that Cameco plans to use a series of storage tanks to provide surge capacity between the satellite plant and the deep disposal well. Cameco has also identified trucking contaminated wastewater off-site for disposal in an emergency situation. It is not clear to the staff whether the proposed volume of tank storage (300,000 gallons) will be sufficient to provide adequate surge capacity. The ability to demonstrate and maintain adequate disposal capacity will be a key factor of the staff's review. Additionally, the engineering aspects and design of the storage tanks and associated infrastructure is not clear to staff.

Application Chapter 5

1. Regarding the use of designees for approving radiation work permits (RWPs) as described in Section 5.2.1.2 of the TR, please identify personnel by job function and specialized training given to these personnel to qualify them to approve RWPs consistent with Regulatory Guide 8.31.
2. Consistent with NUREG-1569, Acceptance Criterion 5.4.3 (1), please provide the minimum requirements for RSO specialized training.
3. Consistent with NUREG-1569, Acceptance Criterion 5.5.3 (2), please provide a copy of the applicant's specific policy on declared pregnant women.
4. Consistent with NUREG-1569, Acceptance Criterion 5.7.1.3 (4), please provide minimum performance specifications for, and the frequencies of tests and inspections of, the ventilation system or indicate where this information can be found in the application.
5. Consistent with NUREG-1569, Acceptance Criteria 5.7.2.3 (3) and (8), please provide information on beta survey instruments and a description of procedures used for beta monitoring and evaluations.

6. Please address NUREG-1569, Acceptance Criterion 5.7.2.3 (5) or indicate where this can be found in the application.
7. Consistent with NUREG-1569, Acceptance Criterion 5.7.2.3 (7), please provide a copy of the applicant's ALARA policy statements, instructions, or similar documents.
8. Consistent with NUREG-1569, Acceptance Criterion 5.7.3.3 (1), please provide the location of airborne uranium particulates on Figure 5.7-2.
9. On page 5-25 of the TR, Figure 2.9-2 is referenced as showing the proposed airborne sampling locations for the satellite facility. Please confirm whether this is the correct figure or Figure 5.7-2 should be referenced.
10. Consistent with NUREG-1569, Acceptance Criterion 5.7.3.3 (2), please provide details on equipment used to evaluate beta activity on airborne samples.
11. Consistent with NUREG-1569, Acceptance Criterion 5.7.3.3 (6), please provide the procedures or otherwise describe the analysis used to determine if respirators will be used for a specific activity (e.g., maintenance).
12. Page 5-32 of the TR refers to TR Section 5.7.3.2 (CBR Site-Specific DAC) for Rn-222 daughter concentration surveys. The correct reference appears to be TR Section 5.7.3.3 (Radon Daughter Concentration Monitoring). Please correct if necessary.
13. Consistent with NUREG-1569, Acceptance Criterion 5.7.6.3 (1), please provide details on how survey equipment is set up in the wellfield to monitor workers in the wellfield as described in Section 5.7.6 of the TR and who is responsible for determining that the equipment is functioning properly.
14. Please state whether the practice of washing the soles of shoes prior to exiting the restricted area will be used at Marsland. Consistent with NUREG-1569, Acceptance Criterion 5.7.6.3 (1), please demonstrate the minimum detectable concentration for contamination surveyed on the wet soles of shoes if this practice will occur at Marsland.
15. Consistent with NUREG-1569, Acceptance Criterion 5.7.6.3 (3), please describe actions taken if skin contamination is found to be over the limits described in Regulatory Guide 8.30.
16. Consistent with NUREG-1569, Acceptance Criterion 5.7.6.3 (4), please provide the range and sensitivity for the listed survey equipment.
17. NRC staff notes that the Model 44-38 probe is rated with a beta cutoff energy of 200keV. Consistent with NUREG-1569, Acceptance Criterion 5.7.6.3 (4), please provide information on how surface contamination with beta-emitting radionuclides are evaluated.
18. Please address NUREG-1569, Acceptance Criterion 5.7.6.3 (6), for operations or indicate where this information can be found in the TR.
19. Please address NUREG-1569, Acceptance Criterion 5.7.6.3 (7), for operations or indicate where this information can be found in the TR.
20. It is NRC policy that only the RSO or HPT release items for unrestricted use. Consistent with NUREG-1569, Acceptance Criterion 5.7.6.3 (8), please clarify the statement in Section 5.7.6 of the TR that specifies someone other than the RSO or HPT will be used for releasing items from the restricted area.
21. Please address NUREG-1569, Acceptance Criteria 5.7.6.3 (9)(a-c), for operations or indicate where this information can be found in the TR.
22. Consistent with NUREG-1569, Acceptance Criterion 5.7.7.3 (2), please provide the criteria used for determining the proposed locations for the airborne effluent monitoring stations.

Application Chapter 6

1. Consistent with NUREG-1569, Acceptance Criterion 6.4.3 (3), please provide confirmation that site specific parameters relevant to Marsland (soil type, wind speed, precipitation, etc.) were used for the RESRAD analysis and thus deriving the radium benchmark dose. If these parameters are different from what was analyzed, please provide a relevant RESRAD and radium benchmark dose analysis.
2. Consistent with NUREG-1569, Acceptance Criterion 6.4.3 (4), please provide a Marsland site-specific discussion on Th-230 or indicate where this information can be found in the TR. Section 2.5 of Appendix N only discusses Crow Butte water samples.

3. Consistent with NUREG-1569, Acceptance Criterion 6.4.3 (5), please provide justification for the statement in TR Section 6.4.1 that the applicant will limit the uranium concentration in soil to 150 pCi/g averaged over more than 100 m².
4. Consistent with NUREG-1569, Acceptance Criterion 6.4.3 (5), please substantiate the use of the 17,900 cpm gamma action level indicated in TR Section 6.4.2 for use at Marsland as this action level was derived using data from the main facility.
5. Consistent with NUREG-1569, Acceptance Criterion 6.4.3 (5), NRC staff notes that NUREG/CR-5849 has been superseded by NUREG-1757 (see Table 1.4 of Vol.II).

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders," a copy of this e-mail will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of the NRC's ADAMS, which is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

Sincerely,

Tom Lancaster



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